AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 3076

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COMPOUND, CORROSION-PREVENTIVE
Hard Film - Cold Application

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.

2. TYPE: A ready-mixed compound, consisting of essentially equal parts of a stable, non-volatile, petroleum-base compound and Petroleum Solvent, AMS 3160, suitable for application by dipping, brushing, or spraying at 70 F and higher.

3. APPLICATION: Preservation, during extended periods of shipment and/or storage, of miscellaneous metal parts, tools, sub-assmeblies, and equipment where the compound is readily accessible for removal and removal does not damage the parts.

4. TECHNICAL REQUIREMENTS:

4.1 Abrasiveness: Compound shall not contain abrasive substances.

4.2 Toxicity: Compound shall contain no materials of known toxicity. The vapor shall not cause discomfort or injury to workmen engaged in the application of the compound.

4.3 Coverage: Compound shall provide a continuous, completely protective film on metal parts under normal conditions of storage in all climates.

4.4 Setting: Compound as applied to metal parts shall set to a firm, hard film in 24 hr at room temperature (77 F ± 7) and, after 120-hr setting, shall not have checked or cracked so as to expose the metal surface underneath.

4.5 Removability: Compound shall be readily removed by dipping in, or spraying with, Petroleum Solvent, AMS 3160, or by wiping with cloths saturated with the solvent.

4.6 Corrosion: Compound shall not corrode polished steel, copper, magnesium, aluminum, or cadmium plate when maintained in contact with those metals for 4 hr at 210 F.

4.7 Flash Point: Compound shall have a flash point not lower than 100 F when determined in accordance with ASTM D 56-36.

4.8 Percentage of Non-Volatile Matter: Compound shall contain not less than 50% (by weight) non-volatile matter when determined as follows:

4.8.1 Ten grams of compound shall be weighed to the nearest milligram into a tared evaporating dish and the dish and contents heated for 24 hr in an oven at 221-230 F. After heating, the dish shall be cooled to room temperature and reweighed and the non-volatile matter calculated from the residual weight.

4.9 Properties of Non-Volatile Matter: Non-volatile matter (either that portion remaining from mixed compound after complete evaporation of the solvent, or the original base compound from which the mixed compound was made) shall conform to the following requirements; tests shall be performed in accordance with listed ASTM methods:

Melting Point (ASTM D127-30)	150 F min
Consistency (ASTM D217-44T, Part II)	90 max

4.10 Lead Solubility of Non-Volatile Matter: Non-volatile matter shall not cause a change in weight of a lead specimen of more than 5 mg per sq in. when tested as follows:

4.10.1 Fifty grams ±1.0 of non-volatile matter (either that portion remaining from mixed compound after complete evaporation of the solvent, or the original base compound from which the mixed compound was made) shall be weighed into a suitable dish and the dish and non-volatile matter heated to 205-210 F. A 1x1x1/16-in polished specimen of lead sheet shall be accurately weighed and immersed for 4 hr in the non-volatile matter maintained at 205-210 F. Specimen shall be removed, cleaned with solvent, and reweighed. Change in weight per square inch shall be calculated from the change in weight and the total area of the specimen.

4.11 Loss on Heating: Compound shall not lose more than 5.0% in weight when tested as follows:

4.11.1 Two 2x4x1/16-in. polished and alkaline-cleaned panels of low carbon steel sheet, AMS 5042 or equivalent, shall be weighed to the nearest milligram. Panels shall be dipped in compound at 82 F + 3, withdrawn and suspended vertically in an atmosphere of not more than 60% relative humidity at a temperature of 77 F ± 7 for 24 hr. Panels shall be weighed to determine the weight of the coating and then suspended for 4 hr in an oven at 135 F + 1. After heating, panels shall be carefully removed from the oven, allowed to cool to room temperature and reweighed. The percentage loss shall be calculated from the loss in weight and the original weight of coating.

4.12 Stability: Compound shall remain homogeneous with age and when tested as follows:

4.12.1 A sample of compound shall be placed in a test tube, heated to 100 F ± 2 and maintained at that temperature for 1 hr. Tube and compound shall be cooled at room temperature for 1 hr, then further cooled to -40 F ± 2 and maintained at that temperature for 1 hr. Compound, after returning to room temperature, shall be examined for homogeneity.

4.13 Wetting Properties and Low Temperature Adhesion: Compound shall thoroughly wet the surface of test panels, shall form a smooth, unbroken film, and shall evince satisfactory adhesion when tested as follows:

4.13.1 Two 2x4x1/16-in. polished and alkaline-cleaned panels of low carbon steel sheet, AMS 5042 or equivalent, shall be dipped in compound at 82 F ± 3, withdrawn and suspended vertically in an atmosphere of not more than 60% relative humidity at a temperature of 77 F ± 7 for 24 hr. Panels shall be cooled to 0 F ± 2 and maintained at that temperature for 1 hr. While at 0 F ± 2 four parellel scratches about 1/8 in. apart and 1 in. long shall be made in the compound film with a pointed knife blade and four similar scratches which intersect the first four at right angles. There shall be no flaking of the film within the area bounded by the scratches.

4.14 Humidity Protection: Compound shall protect metal panels from corrosion and pitting for 30 days when exposed to humid atmosphere as follows:

4.14.1 Test panels 2x4x1/16-in. shall be prepared. There shall be two freshly sandblasted panels and two polished and alkaline-cleaned panels of low carbon steel sheet, AMS 5042 or equivalent, and two polished panels of aluminum alloy sheet, AMS 4037. All panels shall be dipped in compound at 82 F ± 3, withdrawn and suspended vertically in an atmosphere of not more than 60% relative humidity at a temperature of 77 F ± 7 for 24 hr.

4.14.2 After the 24-hr conditioning in 4.14.1, all panels shall be suspended vertically in humid atmosphere for 30 days in accordance with ARP 362 (Humidity Cabinet). Upon completion of the exposure, panels shall be removed from the cabinet, cleaned with solvent, and examined. Visible corrosion or pitting of any surface shall be cause for rejection of the compound. If corrosion occurs, but to no greater extent than three spots no larger than 1 mm in diameter, the compound may be retested. If, on retesting, no corrosion spots occur, the compound shall be acceptable. In any case, corrosion within 1/8 in. of an edge shall be disregarded.

4.15 Salt Spray Protection: Compound shall protect metal panels from corrosion and pitting for 30 days when exposed to salt spray as follows:

4.15.1 Test panels 2x4x1/16-in. shall be prepared. There shall be two freshly sandblasted panels and two polished and alkaline-cleaned panels of low carbon steel sheet, AMS 5042 or equivalent, two polished panels of aluminum alloy sheet, AMS 4037, and two polished panels of copper sheet, AMS 4500. All panels shall be dipped in compound at 82 F ± 3, withdrawn and suspended vertically in an atmosphere of not more than 60% relative humidity at a temperature of 77 F ± 7 for 24 hr.

4.15.2 After the 24-hr conditioning in 4.15.1, all panels shall be exposed to salt spray for 30 days in accordance with ASTM D117-44T. Upon completion of the exposure, panels shall be removed from the cabinet, cleaned with solvent, and examined. Visible corrosion or pitting shall be cause for rejection of the compound. If corrosion occurs, but to no greater extent than three spots no larger than 1 mm in diameter, the compound may be retested. If, on retesting, no corrosion spots occur, the compound shall be acceptable. In any case, corrosion within 1/8 in. of an edge shall be disregarded.

5. REPORTS: Unless otherwise specified, the vendor shall furnish with each shipment three copies of a notarized report of the results of tests to determine conformance of the batch of compound to the requirements of this specification. This report shall include the purchase order number, material specification number, batch number, date of manufacture, and quantity.